**CHEMICAL OR PHYSICAL CHANGE LAB (2016)**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Partner(s) Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Purpose:**

To observe the **physical and chemical properties** of substances and determine if any **physical or chemical changes occur**.

The starting substances are **reactants**. Accurate observations of the reactants must be recorded in order to determine if a physical or chemical change occurs.

**Safety**:

Goggles and gloves must be worn at all times or you will sit out the lab in the office.

All wastes and unused chemicals must be put in the designated waste disposal container.

Follow all instructions carefully.

Behave properly in the lab.

**Equipment**:

Buckets contain a watchglass, and a rubber stopper for each team.

Three test tubes on a rack will be given to each team.

The chemicals in the bucket are **shared** between four teams.

Take only 1 chemical at a time from the bucket assigned to your group.

Measure the correct amount and return the chemical to the correct bucket immediately.

**Pre-lab:**

1. Read the entire lab carefully.

2. In the first column below list all the equipment mentioned in the procedures. [2]

3. In the second column below list all the chemicals mentioned in the procedures. [2]

**EQUIPMENT CHEMICALS**

3. Copy each chemical name from your pre-lab into column one. Then use the MSDS sheets the teacher gives you and complete the chemical safety chart for each chemical. Some chemicals have more than one name so look under synonyms and product name. [3]

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| --- | --- | --- | --- |
| **Chemical Name** | **Formula (if available)** | **Hazards** | **Safety Precautions Recommended** |
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**Procedures**

**During each experiment record the reactants and observations before, during and after.**

Experiment #1

1. Put a tarnished penny on the watchglass. Record observations.

2. Sprinkle the penny with a small amount (cover the tip of the scoopula) of sodium chloride (NaCl). Record observations.

3. Put 15-20 drops of acetic acid (CH3COOH) on the penny and let it stand for 1 minute. Record observations.

Experiment #2

1. Put a finger width of sodium hydroxide (NaOH) solution in a test tube. Record observations.

2. Add 3 drops of phenolphthalein indicator directly into the liquid. **Keep the dropper clean**. Record observations.

3. Find a rubber stopper that fits the test tube without falling in. Put the rubber stopper on the test tube and gently shake. Hold stopper on while shaking. Record observations.

4. Add 15 – 20 drops of acetic acid (CH3COOH). Record observations while adding drops and k**eep the dropper clean**.

5. Put the stopper on again and gently shake. Record observations.

Experiment #3

1. Fill a test tube with a finger width of acetic acid (CH3COOH). Record observations.

2. Add a small amount of sodium bicarbonate (NaHCO3). Record observations.

Experiment #4

1. Fill a test tube with a finger width of tap water (H2O). Record observations.

2. Add a small amount of solid copper sulphate (CuSO4). Record observations.

3. Put on stopper and gently shake test tube for 2-3 minutes. Record observations.

4. STOP. Save the solution to use in experiment #5.

Experiment #5

1. Take a 1 cm piece of magnesium (Mg) metal ribbon. Record observations.

2. Rub magnesium ribbon on both sides with steel wool. Record observations.

3. Put the magnesium ribbon in the test tube with the copper sulphate solution from experiment #4. Watch carefully for at least 2 min. Record observations.

**Clean Up**

1. Put all chemicals carefully back into the bucket.

2. Dump the waste from all 3 test tubes into the designated waste container. Carefully wash test tubes with a test tube brush. Do NOT use soap. Rinse well. Put them on the test tube stand to dry and return to the cart at the front.

3. Wash and rinse the watchglass, stopper and penny. Put back in the bucket.

4. Put the used pennies in the “Finished penny” beaker at the front of the class.

5. Wash your hands and use the paper towel to wipe the work area that was sprayed with Enviroclean.

6. Put back your goggles and throw gloves in the garbage.

**Analyse Results**

Complete the last column stating when a physical and/or chemical change occurred and the **evidence**. Some experiments have more than one change – be careful!

**OBSERVATIONS – PHYSICAL OR CHEMICAL CHANGE LAB 2016**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Partner(s) Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Day: \_\_\_\_ Period: \_\_\_

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| --- | --- | --- | --- | --- | --- |
| Number | Name **all** the Reactants  **[1 each]** | Describe 2 physical properties of each reactant Before [1 each] | Observations  **What happens during? [1 each]** | Observations  **What happens at the end? [1 each]** | Physical **and/or** Chemical Change ?  State the evidence that supports your Conclusion. **[1 for each change!]** |
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |
| Number | Name **all** the Reactants  **[1 each]** | Describe 2 physical properties of each reactant Before [1 each] | Observations  **What happens during? [1 each]** | Observations  **What happens at the end? [1 each]** | Physical and/or Chemical Change ?  State the evidence that supports your Conclusion. **[1 for each change!]** |
| 4 |  |  |  |  |  |
| 5 |  |  |  |  |  |